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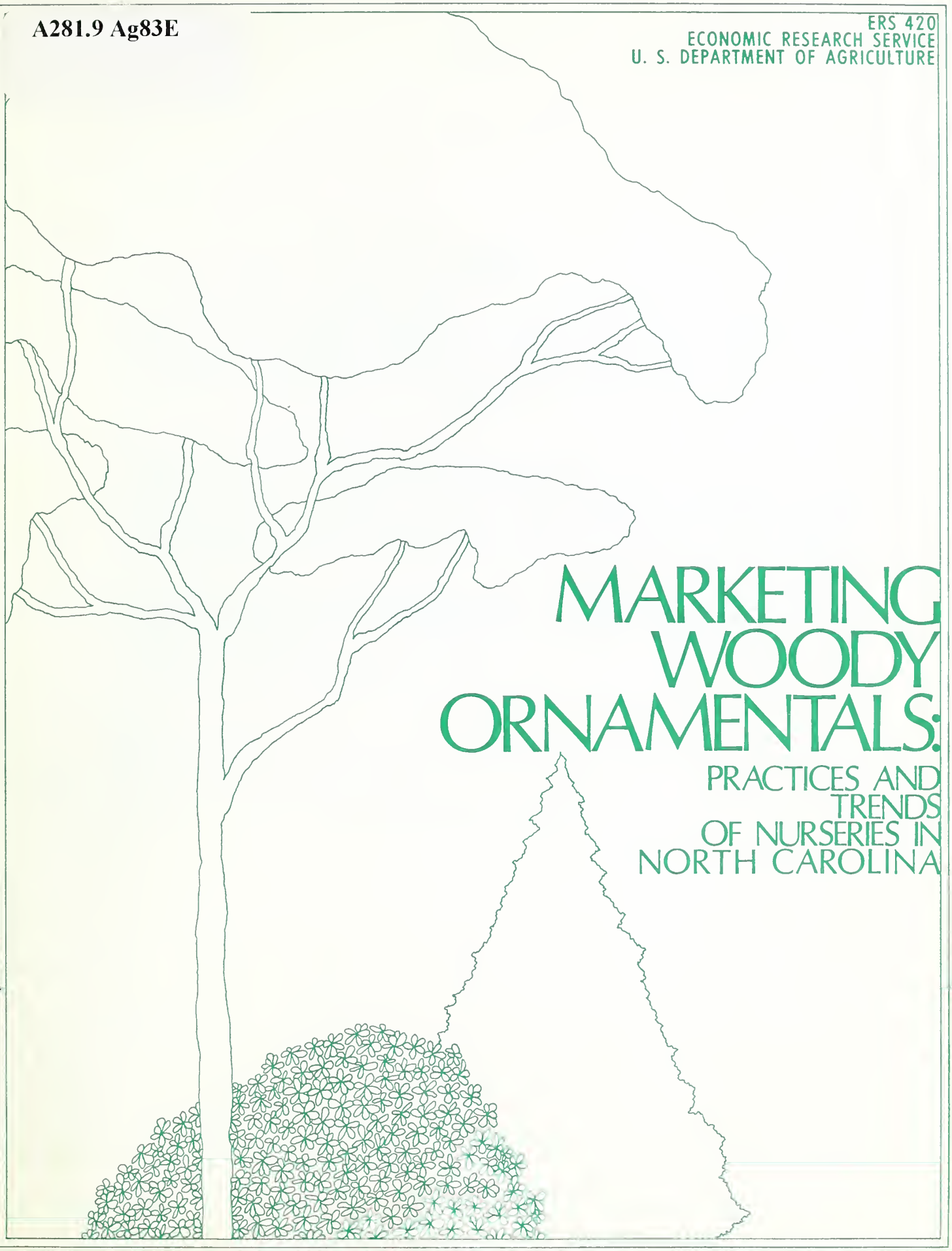

MARKETING WOODY ORNAMENTALS:

PRACTICES AND TRENDS OF NURSERIES IN NORTH CAROLINA

PREFACE

This report is published as a contribution to the Marketing Research Project (SM-33) on the woody ornamental nursery industry in the Southern Region. States cooperating in the project were Alabama, Florida, Georgia, Kentucky, Mississippi, South Carolina, Texas, and Virginia. Data for Louisiana, North Carolina, and Tennessee were collected by the Economic Research Service.

In this report, information gathered in North Carolina is compared with the regional study, Marketing Woody Ornamentals: Practices and Trends of Nurseries in the South, Bul. 143, Southern Cooperative Series, Auburn University, April 1969. Already published is Marketing Woody Ornamentals: Practices and Trends in Louisiana, ERS 409, May 1969.

The authors are indebted to F. D. Cochran and George L. Capel, North Carolina State University, for their assistance in this study, and to nurserymen throughout the State who cooperated in the research effort.

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SUMMARY

Production of woody ornamentals in North Carolina increased 71 percent between 1960-65. An additional 75-percent rise by 1970 is forecast. In 1965, broadleaf and narrowleaf evergreens were produced by more than 90 percent of the nurseries in the State, and deciduous shrubs and ornamental trees by approximately 70 percent. Broadleaf evergreens accounted for 70 percent of the woody ornamentals marketed in 1965.

Producers of woody ornamentals in North Carolina had average sales of $58,000 in 1965, compared with the average of $39,470 for the 11 States in the Southern Region. In central North Carolina, where 40 percent of the nurseries were located, average sales amounted to $75,000. While many small firms produced woody ornamentals in the State, total sales were highly concentrated--approximately 21 percent of the firms accounting for 75 percent of the sales.

North Carolina nurseries made approximately 45 percent of their sales to local buyers and shipped 21 percent of total sales to States outside the South. New York and Connecticut were the two major State destinations for North Carolina woody ornamentals. Shipments to Washington, D. C., were larger than those to any other city. Of the plants delivered locally, 30 percent were purchased by individual consumers and 35 percent by retailers.

More than half (60 percent) of all North Carolina nurseries were established before 1950. This figure compares with 45 percent for the entire Southern Region. Older firms, generally operated as corporations or partnerships, tended to have larger sales. Most of the small firms were proprietorships, in business for less than 15 years.

Producers of woody ornamentals were inclined to specialize in either wholesale or retail sales, mostly wholesale. The larger firms were more likely to sell largely or exclusively in the wholesale market. This differed from the regional tendency of firms to specialize in the retail market or a combination of retail and wholesale. Larger firms also tended to set prices.

Only 35 percent of firms in the State sold plants directly to public agencies. Difficulty in meeting specifications and insufficient plant materials were among the problems cited.

Larger firms, except the very largest, appeared to make somewhat more efficient use of labor than smaller ones, as measured by sales per man-hour. In the Southern Region, sales per man-hour were highest in the largest firms. Scarce labor and increasing costs appeared to be encouraging mechanization, particularly the trend toward more container-grown stock. Weather hazards and weed control were other problems of management associated with shortages of competent labor.

MARKETING WOODY ORNAMENTALS: PRACTICES AND TRENDS OF NURSERIES IN NORTH CAROLINA

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INTRODUCTION

The production and marketing of woody ornamentals has become increasingly important in North Carolina's agricultural economy. 1/ According to the 1964 Census of Agriculture, the number of firms producing nursery stock in North Carolina increased from 411 in 1954 to 801 in 1964. During the same period, the value of sales rose from $1,533,000 to $3,998,000. The need for statistical information to serve as a basis for planning has increased with the size of the business and the accompanying growth of production and marketing problems.

This report provides an economic profile of the woody ornamental industry in North Carolina. It contains descriptive data designed to give a general picture of the industry and to reveal problem areas that may require additional study by public or private agencies.

PROCEDURE

Data for this study were gathered in 1965 by interviews with the owners or managers of 52 nurseries producing woody ornamentals in North Carolina. The sample was drawn from respondents to a mail survey of nurseries in the State with sales exceeding $2,000 a year.

Personal interviews were conducted by representatives of the Economic Research Service. The questionnaire used was prepared by the SM-33 Technical Committee for a study of the woody ornamental nursery industry in the Southern Region. The data obtained in the North Carolina study were incorporated in the SM-33 Technical Committee's report for the Southern Region (see Preface). Comparisons are made in this report with the findings of the regional study.

Data in this report often differ from those in the regional report, because the data published in the regional report have been adjusted to represent the total estimated "universe" for woody ornamentals in the 11 Southern States. Data reported here represent only the averages for the 52 firms interviewed, unless noted otherwise.

1/ Woody ornamentals are used in this report to include broadleaf evergreens, narrowleaf evergreens, deciduous shrubs, and ornamental trees.

GENERAL CHARACTERISTICS OF WOODY ORNAMENTAL NURSERIES

Many of the marketing practices and problems of the North Carolina nursery industry are caused or conditioned by the production characteristics of the industry, such as size, age, and capitalization of firms.

Size of Business

Total 1965 sales of woody ornamentals by the sample of 52 firms amounted to $2,993,000 (table 1). An expansion factor, derived for the regional report, gives an estimated total sales figure of $3,661,900 for the entire woody ornamental nursery industry in North Carolina. This is more than 7 percent of the sales of woody ornamentals for the 11 Southern States. Only Florida accounted for more than 10 percent of the total sales for the region.

Table 1.--Sales of woody ornamentals, by size of firm, 52 commercial woody ornamental nurseries, North Carolina, 1965

Size of firm 1/	Firms	Value of sales 2/		
		Range	Average	Total sales, all firms in sample
	Number	1,000 dollars	1,000 dollars	1,000 dollars	Percent
Very small	15	2-9.9	5	69	2
Small	12	10-19.9	14	170	6
Medium	6	20-39.9	26	155	5
Large	8	40-79.9	54	435	14
Very large	11	80 and over	197	2,164	73
Total or average	52	---	58	2,993	100

1/ Based on dollar volume of sales.
2/ Sales of woody ornamentals produced by the firm; sales of other products not included.

Total sales of the woody ornamental nursery industry were highly concentrated in a few firms. Eleven firms (21 percent) accounted for almost 75 percent of the total sales of the group.

Sample nurseries were classified by dollar volume of sales, since acreage did not appear to be economically significant. Most of the firms tended to cluster near the lower end of the size range. As shown in table 1, the very small firms with sales of $2,000-$9,000 had average sales of $5,000, while sales of the medium-size firms, ranging from $20,000 to $39,000, averaged $26,000. Average sales of the very large firms were $197,000, whereas the median firm in the group had sales of $150,000. Average sales for all firms in the sample were $58,010, but only $18,000 for the median.

Age of Firm and Management

Approximately 60 percent of the nurseries studied were established before 1950, compared with 45 percent for the Southern Region. The oldest firm began business in 1842 and the newest in the 1960's. The older nurseries tended to have the higher volume of sales (table 2).

Table 2.--Distribution of firms by year of establishment, size, and type of organization, 52 commercial woody ornamental nurseries, North Carolina, 1965

Item	Year established					Total firms	Average year
	Before 1930	1930-39	1940-49	1950-59	1960-65		
	Firms						
Size of firm:							
Very small	2	1	4	6	2	15	1945
Small	1	2	2	7	-	12	1947
Medium	-	1	3	2	-	6	1947
Large	3	2	-	2	1	8	1937
Very large	3	1	6	1	-	11	1926
Total	9	7	15	18	3	52	1940
Organization:							
Proprietorship	3	6	8	15	1	33	1944
Partnership	1	-	2	2	-	5	1946
Corporation	5	1	5	1	2	14	1930
Total	9	7	15	18	3	52	1940

Over half the small firms had been in operation less than 15 years, usually as proprietorships. More of the very large firms operated as corporations than as proprietorships or partnerships. The average date of establishment for a corporation was 1930, compared with 1944 for a proprietorship and 1946 for a partnership. Four-fifths of the corporations were over 15 years old.

More than 50 percent of the managers were between the ages of 40 and 59, and one-third were over 60 years of age (table 3). The Southern Region had a slightly higher percentage of older managers than the State. Several firms reported they were going out of business or not planning to expand because of the age of the manager.

Table 3.--Distribution of firms by age of manager and size of firm, 52 commercial woody ornamental nurseries, North Carolina, 1965

Size of firm	Age of manager			Total
	20-39 years	40-59 years	60 years and over	
	Firms			
Very small	-	10	5	15
Small	3	5	4	12
Medium	1	4	1	6
Large	3	3	2	8
Very large	3	5	3	11
Total	10	27	15	52

Organization of Business

More than 60 percent of the firms in North Carolina operated as proprietorships, although the very large and the older firms usually were corporations (table 4). Younger managers were more likely than the older ones to operate corporations or partnerships. In the Southern Region, the distribution of firms by type of organization was similar to that in North Carolina. Average sales of firms operating as corporations were about eight times as large as those of proprietorships and 68 percent larger than those of partnerships (table 5).

Table 4.--Distribution of firms by organization of business, age of manager, and size of firm, 52 commercial woody ornamental nurseries, North Carolina, 1965

Item	Proprietorship	Partnership	Corporation	Total firms
	Firms			
Age of manager:				
29-39 years	3	2	5	10
40-59 years	17	3	7	27
60 years and over	13	-	2	15
Total	33	5	14	52
Size of firm:				
Very small	13	1	1	15
Small	11	-	1	12
Medium	4	1	1	6
Large	4	2	2	8
Very large	1	1	9	11
Total	33	5	14	52

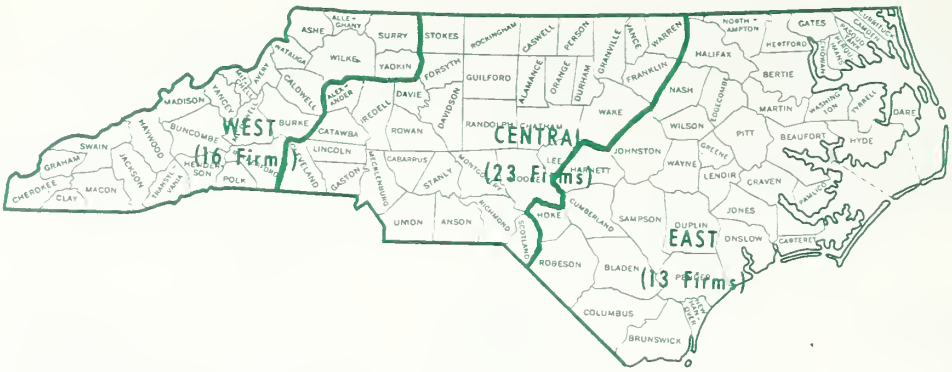
Table 5.--Average volume of sales of woody ornamentals from own production, by type of organization, 52 commercial nurseries, North Carolina, 1965

Type of organization	North Carolina	Southern Region
	Dollars	
Proprietorship	18,000	20,357
Partnership	84,000	44,435
Corporation	141,000	109,967
All firms	58,000	39,470

More than 40 percent of the firms were located in central North Carolina, the remainder being about equally divided between the eastern and western regions of the State (table 6 and fig. 1). Because of the concentration of larger firms, annual sales were also higher in the central region, averaging $75,000, compared with $58,000 for the entire State.

Table 6.--Distribution of firms producing and selling woody ornamentals, by size of firm and regional location in State, 52 commercial nurseries, North Carolina, 1965

Region of North Carolina	Firm reporting by size of firm					Total
	Very small	Small	Medium	Large	Very large	
	Firms					
East	2	2	4	2	3	13
Central	6	5	1	5	6	23
West	7	5	1	1	2	16
Total	15	12	6	8	11	52



DISTRIBUTION OF 52 COMMERCIAL WOODY ORNAMENTAL NURSERIES, BY REGIONAL LOCATION, NORTH CAROLINA, 1965

Figure 1

Kinds of Sales

About two-thirds of the firms sold more than 70 percent of their woody ornamentals at wholesale (table 7). This number included all but three of the large and very large firms. Of the 16 firms selling 30 percent or less of their products at wholesale, 10 were classified as small or very small.

Table 7.--Distribution of firms by size and percentage of sales at wholesale, 52 commercial woody ornamental nurseries, North Carolina, 1965

Size of firm	Percentage of sales at wholesale 1/			
	0-30	31-70	71-100	Total
	Firms			
Very small	4	-	11	15
Small	6	2	4	12
Medium	3	-	3	6
Large	1	-	7	8
Very large	2	-	9	11
Total	16	2	34	52

1/ Balance of sales at retail.

Table 8.--Firms selling specified types of woody ornamentals, by size of firm, 52 commercial nurseries, North Carolina, 1965

Size of firm	Broadleaf evergreens	Narrowleaf evergreens	Deciduous plants	Ornamental trees	Total 1/
			Firms		
Very small	13	13	6	6	15
Small	12	12	8	9	12
Medium	6	6	5	4	6
Large	8	8	6	7	8
Very large	11	9	10	11	11
Total	50	48	35	37	52

1/ Total exceeds number of firms because most firms produced more than one type of plant.

Types of Plants Produced and Sold

More than 90 percent of all firms reported producing both broadleaf and narrowleaf evergreens (table 8). The small firms tended to specialize in one or two types of plants, usually one or two genera of broadleaf or narrowleaf evergreens. Most of the larger firms produced all the principal types of plants.

Employment Practices

The number of full-time employees did not vary directly with the size of the firm. The central region of the State, where most of the large firms were located, had fewer full-time employees than the eastern region. The larger corporations tended to hire more people than proprietorships or partnerships (table 9). A few firms hired no employees. The average number of employees per firm hiring full-time employees was 10.6 in North Carolina and only 6.8 persons in the Southern Region.

Table 9.--Distribution of full-time employees, 52 commercial woody ornamental nurseries, by type of organization and regional location in North Carolina, 1965

Type of organization	Full-time employees			
	East	Central	West	Total
		Number		
Proprietorship	47	32	25	104
Partnership	6	16	18	40
Corporation	242	75	17	334
Total	295	123	60	478

Table 10.--Index of part-time employees, by month, 52 commercial woody ornamental nurseries, North Carolina, 1965

(July = 100)

Month	Part-time employees	Month	Part-time employees
January	33	July	100
February	35	August	88
March	155	September	90
April	166	October	103
May	149	November	116
June	118	December	55

Many firms relied heavily on part-time help during the peak seasons. Others used little or no part-time labor. The planting months--March, April, and May--were the peak employment periods in North Carolina (table 10).

Efficiency of Firms

Total man-days or man-hours worked including full-time and part-time labor varied directly with the sales volume of the firm. Therefore, sales per man-day or per man-hour of labor appear to be a good measure of efficiency for a firm (table 11).

Large firms with sales of $40,000 to $79,999 had the highest efficiency, measured in terms of sales per man-hour. Sales per man-day in North Carolina for the very large firms of $70,000 and over were slightly below the level reached by the large firms but well above the level achieved by smaller firms. This diseconomy of scale for the very large firms did not follow in the Southern Region, where sales per man-hour were largest for the very large firms.

Partnership firms achieved the highest average sales per man-day, $28. This figure may not be very meaningful, however, because of the small number of partnership firms in the sample. In the Southern Region, proprietorships had sales per man-day of $20, partnerships $23, and corporations $25.

Neither age nor experience of the manager appeared to be closely related to the efficiency of a firm. Managers under 40 years of age had sales per man-day of $19, compared with $21 for those over 40.

MARKETING WOODY ORNAMENTALS

Methods of Preparing Plants for Sale

For purposes of analysis, woody ornamentals were divided into four classes: broadleaf evergreens, narrowleaf evergreens, deciduous shrubs, and

Table 11.--Average sales per man-day and man-hour of employment, 52 commercial woody ornamental nurseries, by age of manager, type of organization, and size of firm, North Carolina, 1965

Item	Firms	Man-day	Man-hour
	Number	Dollars	
Age of manager:			
20-39 years	10	19	2.37
40-59 years	27	21	2.62
60 years and over	15	21	2.62
Total/Average	52	20	2.50
Type of organization:			
Proprietorship	33	18	2.00
Partnership	5	28	3.50
Corporation	14	20	2.50
Total/Average	52	20	2.50
Size of firm:			
Very small	15	8	1.00
Small	12	16	2.00
Medium	6	15	1.87
Large	8	25	3.12
Very large	11	21	2.62
Total/Average	52	20	2.50

ornamental trees. Seventy percent of all woody ornamental plants marketed by North Carolina nurseries in 1965 were broadleaf evergreens. These sales accounted for 4 percent of the broadleaf evergreens marketed in the Southern Region (table 12).

Nursery plants are prepared in five general forms--rooted cuttings, bare root, in liners, in containers, and balled and burlapped. Balled and burlapped, the most common form of broadleaf and narrowleaf evergreens, was used by 94 percent of the firms selling woody ornamentals produced in North Carolina. Deciduous shrubs and trees were most often marketed as bare root plants. Many of the firms interviewed sold plants in more than one form. Plants were sold in containers by 55 percent of the firms. Only 20 percent of the firms sold plants bare rooted or as liners. Very few firms sold rooted cuttings.

While North Carolina nurseries produce many genera of woody ornamentals, most firms market only the more popular plants. These include Ilex and

Table 12.--Distribution of firms by method of preparing woody ornamentals for sale, 52 commercial nurseries, North Carolina, 1965

Method of preparation	Firms	Broadleaf evergreens	Narrowleaf evergreens	Deciduous shrubs	Ornamental trees	Total
	No.	1,000 plants				
Rooted cutting	2	2.2	0.1	--	--	2.3
Liners	12	263.4	9.0	--	5.0	277.4
Containers	28	335.3	33.9	67.3	4.7	441.2
Bare root	10	32.3	--	63.7	50.3	146.3
Balled and burlapped	49	805.0	249.3	58.7	76.3	1,189.3
Total	52	1,438.2	292.3	189.7	136.3	2,056.5

Rhododendron, the most common broadleaf evergreens, and Juniper, the most common narrowleaf (tables, 13, 14, 15, 16,and 17).

Credit

More than one-third of the North Carolina nurseries reported problems in extending credit to customers--about the same proportion as in the Southern Region. These problems ranged from inability to collect to slow payment of invoices. On the other hand, none of the firms in North Carolina, and only 2 percent in the Southern Region, indicated difficulty in obtaining credit from their suppliers.

Advertising

Of the nurseries surveyed, 58 percent reported that they advertised their products for sale (table 18). The advertising media included local newspapers, trade magazines, catalogs, radio, television, price lists, and trade conventions. Local newspapers were used by 63 percent of the firms that advertised. About 40 percent used trade magazines and catalogs. The larger sized firms advertised the most.

Pricing

Most of the firm managers believed that the prices received for nursery stock were stable, perhaps excessively so.

In both North Carolina and the Southern Region, among the three factors considered most important by nurserymen in determining prices were:

(1) Prices charged by larger nearby nurseries

(2) Costs of production

(3) Quality or grade of plants

Table 13.--Broadleaf evergreens produced and forms in which marketed, 52 commercial woody ornamental nurseries, North Carolina, 1965

Genus	Rooted cuttings	Liners	Containers	Bare root	Balled and burlapped	Total plants
	Plants					
Abelia	--	--	--	--	4,000	4,000
Aucuba	--	600	5,600	--	6,500	12,700
Berberis	--	--	500	--	3,500	4,000
Buxus	--	2,000	1,500	--	7,500	11,000
Camellia	--	--	7,500	--	6,100	13,600
Cleyera	--	--	1,600	--	--	1,600
Elaeagnus	--	--	--	--	1,300	1,300
Euonymus	200	4,300	800	--	8,000	13,300
Gardenia	--	--	1,000	--	500	1,500
Ilex	2,000	76,800	87,200	--	429,700	595,700
Illicium	--	--	4,000	--	2,000	6,000
Jasminum	--	--	--	--	300	300
Kalmia	--	5,000	100	--	1,500	6,600
Laurus	--	--	--	--	200	200
Leucothoe	--	--	--	--	500	500
Ligustrum	--	14,500	11,200	--	56,600	82,300
Magnolia	--	500	2,100	100	7,600	10,300
Mahonia	--	2,500	400	--	200	3,100
Nandina	--	600	600	--	3,500	4,700
Osmanthus	--	--	500	--	4,600	5,100
Photinia	--	1,700	1,700	--	2,800	6,200
Prunus	--	--	--	--	100	100
Pyracantha	--	5,000	9,100	--	2,600	16,700
Rhododendron	--	140,000	184,800	32,100	174,900	531,800
Viburnum	--	--	200	--	300	500
Other	--	9,900	14,900	100	80,200	105,100
Total	2,200	263,400	335,300	32,300	805,000	1,438,200

Table 14.--Narrowleaf evergreens produced and forms in which marketed, 52 commercial woody ornamental nurseries, North Carolina, 1965

Genus	Rooted cuttings	Liners	Containers	Balled and burlapped	Total
	Plants				
Abies	--	--	--	23,500	23,500
Cedrus	--	--	--	2,900	2,900
Cephalotaxus	--	--	500	--	500
Chamaecyparis	--	--	--	1,000	1,000
Cunninghamia	--	--	--	2,000	2,000
Juniperus	100	9,000	18,300	54,100	81,500
Picea	--	--	1,000	15,100	16,100
Pinus	--	--	9,000	76,000	85,000
Taxus	--	--	1,000	3,500	4,500
Thuja	--	--	2,000	35,200	37,200
Tsuga	--	--	500	16,800	17,300
Other	--	--	1,600	19,200	20,800
Total	100	9,000	33,900	249,300	292,300

While "costs of production" was listed by most producers as an important element in determining prices, only 15 percent maintained records in sufficient detail to make reliable estimates of the cost of producing the plants they sold.

Market Areas

Local sales (within 25 miles of the nursery) constituted about 45 percent of total sales of the woody ornamentals produced in North Carolina. However, some of the firms had wide distribution of their plants throughout the United States. About one-fifth of the total production went to States outside of the Southern Region. The smaller firms usually had a larger proportion of localized sales than the larger firms (table 19).

Washington, D. C. was the major southern city supplied by North Carolina nurseries, accounting for 89 percent of sales to southern out-of-State cities. Sales to the Washington, D. C. area represented 40 percent of the dollar volume of sales made to southern cities and States outside of the South. The District of Columbia accounted for 15 percent of total sales of the firms interviewed (table 20).

States outside the Southern Region accounted for one-fifth of total sales. New York purchases accounted for 31 percent of these sales, and Connecticut 23 percent (table 21).

In the Southern Region, 65 percent of total sales were local, compared with 45 percent for North Carolina. Twenty-four percent of the southern

Table 15.--Deciduous shrubs produced and forms in which marketed, 52 commercial woody ornamental nurseries, North Carolina, 1965

Genus	Containers	Bare root	Balled and burlapped	Total
	Plants			
Berberis	100	2,000	2,500	4,600
Buddleia	---	1,000	---	1,000
Cercis	---	1,100	4,700	5,800
Chaenomeles	200	---	400	600
Cydonia	---	---	300	300
Deutzia	600	800	---	1,400
Forsythia	200	---	600	800
Hibiscus	1,200	---	---	1,200
Hydrangea	1,300	---	400	1,700
Lagerstroemia	1,700	18,200	8,700	28,600
Ligustrum	500	---	14,600	15,100
Prunus	200	---	200	400
Rhododendron	47,400	---	14,600	62,000
Rosa	12,700	29,000	7,000	48,700
Spiraea	800	9,500	1,000	11,300
Vaccinium	---	---	200	200
Weigela	200	---	---	200
Other	200	2,100	3,500	5,800
Total	67,300	63,700	58,700	189,700

regional sales were made to southern cities, compared with 34 percent for North Carolina. Nine percent of the total sales of the region were made to States outside the South, in contrast to 21 percent for North Carolina.

These figures indicate that North Carolina nursery producers relied more on wholesale markets than did nurseries in the Southern Region generally.

Marketing Outlets

None of the 52 North Carolina firms interviewed were subsidiaries of larger nurseries nor did they produce exclusively for a larger nursery.

Only 16 percent of the total sales of woody ornamentals by the firms studied were sold on a contractual basis (table 22). However, such contractual sales as were made did not appear to be restricted to any particular type of firm.

Local sales were made to individual users, retailers, wholesalers, landscapers, other growers, and public agencies. Firms with a large percentage of retail sales also tended to make a sizeable share of their sales directly

Table 16.--Shade and ornamental trees produced and forms in which marketed, 52 commercial woody ornamental nurseries, North Carolina, 1965

General	Liners	Containers	Bare root	Balled and burlapped	Total
			Plants		
Acer	---	200	12,700	17,200	30,100
Albizzia	---	---	1,000	---	1,000
Betula	---	100	2,600	5,300	8,000
Castanea	---	---	---	300	300
Cornus	---	500	6,700	16,400	23,600
Gingko	---	100	---	---	100
Liriodendron	---	---	3,000	1,000	4,000
Magnolia	---	1,700	500	6,900	9,100
Malus	---	---	18,100	5,200	23,300
Oxydendrum	---	---	200	100	300
Platanus	---	---	---	400	400
Prunus	---	800	100	3,800	4,700
Quercus	5,000	100	2,000	13,800	20,900
Salix	---	---	---	200	200
Ulmus	---	---	3,000	500	3,500
Other	---	1,200	400	5,200	6,800
Total	5,000	4,700	59,300	76,300	136,300

to individual users. Selling to retailers was the second most important type of local sale (table 23).

Transportation

Woody ornamentals were generally shipped from nurseries to buyers in trucks. Parcel post was used in a few cases. Sales of plants to wholesalers in local outlets were usually picked up at the nursery by the buyer's truck, whereas local retail sales were delivered in the seller's truck. Most of the time, hired carriers were employed for the transportation of rooted cuttings, liners, and bare root plants to States outside the South. Deliveries of container-grown plants and balled and burlapped plants were made by the buyer's truck, seller's truck, or hired carrier (table 24).

MARKETING TRENDS OF WOODY ORNAMENTALS

Production Changes

Total plant production of woody ornamentals has been increasing in the Southern Region, but increases in North Carolina have been much greater than those for the remainder of the region. Firms in North Carolina reported a 71-percent increase in production from 1960 to 1965 and estimated a further

Table 17.--The five most important genera in each class of woody ornamentals produced in North Carolina and the Southern Region, 1965

North Carolina	Southern Region
Broadleaf evergreen	
Ilex	Rhododendron 1/
Ligustrum	Ligustrum
Rhododendron 1/	Gardenia
Pyracantha	Ilex
Camellia	Buxus
Narrowleaf evergreen	
Pinus	Juniperus
Juniperus	Thuja
Thuja	Pinus
Abies	Taxus
Tsuga	Tsuga
Deciduous shrubs	
Rhododendron 2/	Ligustrum
Rosa	Rosa 3/
Lagerstroemia	Hibiscus
Ligustrum	Forsythia
Spiraea	Spiraea
Shade and ornamental trees	
Acer	Cornus
Cornus	Acer
Malus	Populus
Quercus	Malus
Magnolia	Prunus

1/ Includes Azalea.
2/ Includes deciduous Azalea.
3/ Influenced by extremely large production in one area.

increase of 76 percent from 1965 to 1970. In terms of number of plants, the estimated increase from 1965 to 1970 will be nearly double that from 1960 to 1965. The production of broadleaf evergreens increased most rapidly during 1960-65, but narrowleaf evergreens are expected to overtake broadleaf plants between 1965 and 1970 (table 25).

Changes in Methods of Preparing Plants for Sale

The firms interviewed indicated that use of all types of marketing packages had increased since 1960: rooted cuttings by more than 500 percent, liners 172 percent, containers 148 percent, and field grown plants by 44 percent. Estimated increases in sales of plants in containers from 1965 to 1970 were high, especially for cuttings and liners (table 26).

Table 18.--Distribution of firms by size, percentage of sales at wholesale, and forms of advertising used, 52 commercial woody ornamental nurseries, North Carolina, 1965

Item	Local paper	Trade magazine	Catalog	Radio	T.V.	Others 1/	Firms that advertise	Total firms in sample
	Firms							
Percentage of sales at wholesale: 2/								
71-100 pct.	8	9	12	3	--	2	18	34
31-70 pct.	1	--	--	1	--	--	1	2
0-30 pct.	10	3	1	3	2	--	11	16
Total..	19	12	13	7	2	2	30	52
Size of firm:								
Very small..	4	2	1	--	--	--	6	15
Small	6	--	2	3	1	1	6	12
Medium	2	1	1	1	1	--	4	6
Large	3	4	3	1	--	1	6	8
Very large..	4	5	6	2	--	--	8	11
Total..	19	12	13	7	2	2	30	52

1/ Includes price list and trade conventions.
2/ Balance sold at retail.

In the Southern Region, producers estimated a greater increase in the production of plants in liners and containers than in other types of marketing packages. The movement to containers appeared to apply to all classes of plants, except ornamental trees, which were usually sold bare root.

Trends in Plant Preferences

Approximately 60 percent of the firms interviewed noted a change in consumer preference for different kinds of plants. The major changes in order of importance are:

(1) More dwarf plants
(2) More Japanese or Chinese holly
(3) Fewer narrowleaf evergreens
(4) More broadleaf plants
(5) Better quality plants
(6) Fewer evergreens
(7) More shade trees
(8) More Japanese maples
(9) More Rhododendrons, Azaleas, Junipers, trees, and native plants.

Table 19.--Average in-State and out-of-State sales of woody ornamentals from own production, by size of firm, 52 commercial nurseries, North Carolina, 1965

Size of firm	Total	Location of buyer and percent of sales volume				
		In-State		Southern cities out-of-State	States outside South	Total
		Local 1/	Non-local			
	1,000 dollars	Percent				
Very small	5	26	41	3	30	100
Small	14	70	19	3	8	100
Medium	26	56	20	4	20	100
Large	54	49	31	8	12	100
Very large	197	43	12	22	23	100
Average	58	45	17	17	21	100

1/ Within a 25-mile radius of the firm.

Table 20.--Principal southern cities providing a market for woody ornamentals, by sales volume, 52 commercial nurseries, North Carolina, 1965

City	Sales volume	Percentage of sales
	Dollars	Percent
Washington, D. C.	458,140	89
Atlanta, Ga.	25,351	5
Richmond, Va.	21,350	4
Other	10,702	2
Total	515,543	100

ECONOMIC PROBLEMS

Production

Labor shortages, weather hazards, and weed control are major problems for nursery managers in North Carolina and the Southern Region. In some cases, disease, insects, and wage costs were also reported to be serious problems. Lack of production capital was listed as an obstacle by a few nursery managers, especially in the eastern region of North Carolina, while rising taxes appeared to be causing some difficulty in the central area of the State.

Table 21.--Principal States outside the South providing a market for woody ornamentals, by sales volume, 52 commercial nurseries, North Carolina, 1965

States	Sales volume	Percentage of total sales outside Southern Region
	Dollars	Percent
New York	193,430	31
Connecticut	141,550	23
Maryland	118,550	19
Massachusetts	102,190	16
New Jersey	23,240	4
Ohio	18,750	3
Other	28,235	4
Total	625,945	100

Table 22.--Average volume of contract and noncontract sales of woody ornamentals, by size of firm, 52 commercial nurseries, North Carolina, 1965

Size of firm	Average volume of sales		Total
	Contract	Noncontract	
	1,000 dollars		
Very small	1	4	5
Small	2	12	14
Medium	5	21	26
Large	4	50	54
Very large	33	164	197
Average	9	49	58

The most acute problem appears to be labor. Insufficient skilled labor and increasing labor costs are encouraging the development of automation aimed at reducing labor requirements for nursery operations. By growing plants in containers rather than in the field, irrigation and fertilization can be handled by one man and the problem of cultivating for weed control can be reduced. In addition, the trend toward containers helps to eliminate the seasonality of workloads as plants can be moved and marketed without concern for new growth or field conditions.

Business Expansion

More than half the nurserymen (65 percent) planned to expand their businesses by 1970. Those who had no plans for expansion listed labor problems

Table 23.--Average local sales of woody ornamentals from own production and proportion to specified buyers, by percentage of sales at wholesale and size of firm, 52 commercial nurseries, North Carolina, 1965

Item	Average volume of sales	Type of buyer					Total
		Individual user	Retailer	Wholesaler	Landscaper	Other 1/	
	1,000 dollars	Percent					
Percentage of sales at wholesale: 2/							
0-30 percent	22	95	3	1	1	1	100
31-70 percent	12	50	40	2	6	2	100
71-100 percent	29	6	47	26	18	3	100
Average	26	30	35	19	14	2	100
Size of firm:							
Very small	1	54	2	31	13	-	100
Small	10	70	13	2	14	1	100
Medium	15	75	1	7	16	1	100
Large	26	29	29	20	15	7	100
Very large	84	21	43	22	13	1	100
Average	26	30	35	19	14	2	100

1/ Includes other growers and public agencies.
2/ Balance of sales at retail.

as the single most important inhibiting factor. Other factors mentioned were increased competition, low prices, and high opportunity costs when considering alternatives such as real estate and retirement.

Sales to Public Agencies

Only 35 percent of the firms interviewed in North Carolina and 26 percent in the Southern Region sold plants directly to State, Federal, or other public agencies for landscaping of buildings or roads. Approximately half the firms that had done business with public agencies reported problems. Among them were:

(1) Operation too small to supply needs of public contracts;
(2) Nursery usually operated as cash and carry business only;
(3) Low prices;
(4) Architects did not consider availability of plants;
(5) Government specifications too difficult;

(6) Agencies in each State had different specifications;
(7) Unable to fulfill contract;
(8) Lack of proper inspection;
(9) Heavy bidding competition.

Sales for Community or Highway Beautification

Approximately 50 percent of the firms interviewed in North Carolina and 23 percent in the Southern Region had sold plants to landscape contractors for use in community or highway beautification. Only 15 percent reported any problems with such sales. Problems included slow payment and bad checks, requests for cheapest plants without regard to quality, and difficulty in meeting specifications.

Table 24.--Method of transporting woody ornamentals, by plant form and destination, 52 commercial nurseries, North Carolina, 1965

Plant form and destination	Method of transportation			Parcel post
	Buyer's truck	Seller's truck	Hired carrier	
	Percent			
Southern cities:				
Rooted cuttings	--	--	50	50
Liners	33	33	16	--
Containers	57	38	4	--
Bare root	55	22	11	11
Balled and burlapped	44	36	13	2
States outside South:				
Rooted cutting	--	--	100	--
Liners	--	--	100	--
Containers	50	33	16	--
Bare root	--	25	50	25
Balled and burlapped	29	17	47	5

Table 25.--Past and prospective changes in the production of woody ornamentals, 52 commercial nurseries, North Carolina, 1965

Class	Production			Increase in production	
	1960	1965	Estimated 1970	1960-65	Estimated 1965-70
	1,000 plants			Percent	
Broadleaf evergreens	771	1,438	2,453	87	71
Narrowleaf evergreens	177	292	641	65	120
Deciduous shrubs	146	190	352	30	85
Ornamental trees	111	136	176	23	29
Total	1,205	2,056	3,622	71	76

Table 26.--Past and prospective changes in packaging of woody ornamentals, 52 commercial nurseries, North Carolina, 1965

Method of preparation	Production			Increase in production	
	1960	1965	Estimated 1970	1960-65	Estimated 1965-70
	1,000 plants			Percent	
Rooted cuttings	1/	2	66	2/	2/
Liners	102	278	971	172	251
Containers	178	441	655	148	49
Field grown	925	1,335	1,930	44	44
Total	1,205	2,056	3,622	71	76

1/ Less than 500 plants.
2/ Greater than 500 percent.

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Table 27.--Plans for 1970 production of woody ornamentals, by age of manager and size of firm, 52 commercial nurseries, North Carolina, 1965

Item	Firms intending -- 1970 production greater than 1965		1970 production equal to or less than 1965		Total	
	Firm	Percent	Firm	Percent	Firm	Percent
Age of manager:						
20-39 years	8	80	2	20	10	100
40-59 years	20	74	7	26	27	100
60 years and over	6	40	9	60	15	100
Total	34	65	18	35	52	100
Size of firm:						
Very small	8	53	7	47	15	100
Small	8	67	4	33	12	100
Medium	5	83	1	17	6	100
Large	6	75	2	25	8	100
Very large	7	64	4	36	11	100
Total	34	65	18	35	52	100